

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A chirped pulse ~~amplifier~~ amplification system for a fiber optic system, the ~~amplifier~~ chirped pulse amplification system comprising:  
  
a mode-locked laser; and  
  
a pulse selector coupled to an output of the mode-locked laser, wherein the pulse selector modulates an output stream of pulses based upon an applied modulation voltage.
2. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 1, wherein the pulse selector comprises an electro-optic modulator.
3. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 2, wherein the electro-optic modulator is a LiNbO<sub>3</sub> modulator.
4. (withdrawn). The chirped pulse amplifier according to claim 1, wherein the pulse selector comprises an electro-absorption modulator.
5. (currently amended): A chirped pulse ~~amplifier~~ amplification system for a fiber optic system, the ~~amplifier~~ chirped pulse amplification system comprising:

a mode-locked laser;  
a polarization-maintaining device coupled to an output of the mode-locked laser;  
a pulse stretcher coupled to a first output of the polarization-maintaining device;  
an amplifier coupled to the pulse stretcher; and  
a first pulse selector coupled to a second output of the polarization-maintaining device.

6. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the pulse stretcher comprises:

a non-polarization-maintaining dispersion compensating fiber; and  
a Faraday rotator mirror.

7. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the pulse stretcher comprises:

a non-polarization-maintaining dispersion shifted fiber; and  
a Faraday rotator mirror.

8. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the pulse stretcher comprises:

a linearly chirped fiber grating; and  
a Faraday rotator.

9. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the pulse stretcher comprises:

a non-linearly chirped fiber grating; and  
a Faraday rotator.

10. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the ~~amplifier~~ chirped pulse amplification system comprises:

an erbium doped fiber amplifier, ~~or a erbium/ytterbium~~ an erbium and ytterbium doped fiber amplifier, or a ytterbium doped fiber amplifier;  
a wavelength division multiplexer; and  
a diode pump.

11. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the first pulse selector comprises an electro-optic modulator or an electro-absorption modulator.

12. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the polarization-maintaining device comprises a polarization-maintaining beam router, wherein a fiber polarization axis orientation of the input and output fibers matches the orientation of ~~the a~~ a polarization beam splitter within the polarization-maintaining device.

13. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, wherein the polarization-maintaining device comprises:

a polarization-maintaining beam router, wherein a ~~fiber~~ polarization axis orientation of the input and output fibers matches the orientation of ~~the~~ a polarization beam splitter within the polarization-maintaining device; and-

a Faraday rotator, a transmissive optical device, and a mirror disposed at a first port of the polarization-maintaining beam router; ~~and~~

~~—— a Faraday rotator mirror at that port of the polarization-maintaining beam router in case the optical device is transmissive.~~

14. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 5, further comprising:

a second pulse selector coupled to an output of the first pulse selector; and

a synchronization controller that synchronizes the first pulse selector with the second pulse selector.

15. (currently amended): The chirped pulse ~~amplifier~~ amplification system according to claim 14, wherein the second pulse selector comprises an electro-optic modulator or an electro-absorption modulator.

16. (currently amended): A chirped pulse ~~amplifier~~ amplification system for a fiber optic system operating at approximately 1550 nanometers ~~or other wavelength~~, the amplifier comprising:

- a mode-locked laser;
- a polarization-maintaining device coupled to an output of the mode-locked laser;
- a pulse stretcher coupled to a first output of the polarization-maintaining device;
- a first amplifier coupled to the pulse stretcher;
- a pulse selector coupled to the first amplifier; and
- a second amplifier coupled through a beam splitter to a second output of the polarization-maintaining device.

17. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the pulse stretcher comprises:

- a polarization-maintaining dispersion compensating fiber; and
- a Faraday rotator mirror, wherein the pulse selector is coupled between the first amplifier and the Faraday rotator mirror.

18. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the pulse stretcher comprises:

- a polarization-maintaining dispersion shifted fiber; and

a Faraday rotator mirror, wherein the pulse selector is coupled between the first amplifier and the Faraday rotator mirror.

19. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the pulse stretcher comprises:

a linearly chirped polarization-maintaining fiber grating; and

a Faraday rotator, wherein the pulse selector is coupled between the first amplifier and the Faraday rotator.

20. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the pulse stretcher comprises:

a non-linearly chirped polarization-maintaining fiber grating; and

a Faraday rotator, wherein the pulse selector is coupled between the first amplifier and the Faraday rotator.

21. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the first amplifier comprises:

an erbium doped fiber amplifier or a erbium/ytterbium doped fiber amplifier or a ytterbium doped fiber amplifier;

a wavelength division multiplexer; and

a diode pump.

22. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the pulse selector comprises an electro-optic modulator or an electro-absorption modulator.

23. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the polarization-maintaining device comprises a polarization-maintaining beam router, wherein a fiber axis orientation of the input and output fibers matches the orientation of the polarization beam splitter.

24. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the polarization-maintaining device comprises:

a polarization-maintaining beam router, wherein a fiber axis orientation of the input and output fibers matches the orientation of the polarization beam splitter.

a Faraday rotator disposed at a first port of the polarization-maintaining beam router; and

a Faraday rotator mirror at that port of the polarization-maintaining beam router in case the optical device is transmissive.

25. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the second amplifier comprises double clad multimode amplifier fiber operating as a single mode amplifier.

26. (withdrawn): The chirped pulse amplifier according to claim 16, wherein the second amplifier comprises double clad multimode amplifier fiber operating as a single mode amplifier, wherein the double clad multimode amplifier fiber core is less than or equal to 20 micrometers in diameter.

27. (withdrawn): A chirped pulse amplifier for a fiber optic system the amplifier comprising:

a mode-locked laser;

a polarization-maintaining device coupled to an output of the mode-locked laser;

a pulse stretcher coupled to a first output of the polarization-maintaining device;

a first pulse selector coupled to a second output of the polarization-maintaining device;

a second amplifier coupled through a beam router to an output of the first pulse selector;

and

a second pulse selector coupled to the second amplifier.

28. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the pulse stretcher comprises:

a linearly chirped fiber grating; and

a Faraday rotator.



29. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the pulse stretcher comprises:

a non-linearly chirped fiber grating; and  
a Faraday rotator.

30. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the first pulse selector comprises an electro-optic modulator or an electro-absorption modulator.

31. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the polarization-maintaining device comprises a polarization-maintaining beam router, wherein a fiber axis orientation of the input and output fibers matches the orientation of the polarization beam splitter.

32. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the polarization-maintaining device comprises:

a polarization-maintaining beam router, wherein a fiber axis orientation of the input and output fibers matches the orientation of the polarization beam splitter.

a Faraday rotator disposed at a first port of the polarization-maintaining beam router; and

a Faraday rotator mirror at that port of the polarization-maintaining beam router in case the optical device is transmissive.

33. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the second amplifier comprises double clad multimode amplifier fiber operating as a single mode amplifier.

34. (withdrawn): The chirped pulse amplifier according to claim 27, wherein the second amplifier comprises double clad multimode amplifier fiber operating as a single mode amplifier, wherein the double clad multimode amplifier fiber core is less than or equal to 20 micrometers in diameter.

35. (new): The chirped pulse amplification system according to claim 5, wherein the polarization-maintaining device comprises:

a polarization-maintaining beam router, wherein a polarization axis orientation of the input and output fibers matches the orientation of a polarization beam splitter within the polarization-maintaining device; and

a Faraday rotator mirror disposed at a first port of the polarization-maintaining beam router.